

**CLAIMS**

For the convenience of the Examiner, all claims have been presented whether or not an amendment has been made.

1. **(Previously Presented)** A method of processing a database service query, comprising:

receiving a service query,

obtaining a sum of terms associated with the service query by expanding at least one nested term into one or more un-nested terms,

evaluating the sum of terms as a plurality of SQL instructions, wherein the sum of terms comprises one or more positive terms and one or more negative terms,

determining a plurality of results associated with the sum of terms, wherein the determination comprises:

collecting, into a first list, results associated with the one or more negative terms, and

collecting, into a second list, results associated with the one or more positive terms while omitting from the second list any results that are in the first list.

2. **(Original)** The method as claimed in claim 1, further comprising expanding each term to remove NOT operators.

3. **(Original)** The method as claimed in claim 2, wherein the sum of terms are expanded using Boolean logic.

4. **(Original)** The method as claimed in claim 1, in which the service query is an X.500 or LDAP service query.

5. **(Original)** The method as claimed in claim 1, in which the service query is a search service query.

6. **(Withdrawn)** A method of processing a database service query, comprising:  
determining a SQL instruction representative of a function;  
listing the results of a subtracted SQL instruction in a first list, listing the results of a non-subtracted SQL instruction in a second list; and  
not listing results which are duplicates of previously listed subtracted or non-subtracted results.

7. **(Withdrawn)** The method as claimed in claim 6, in which the service query is an X.500 or LDAP query.

8. **(Withdrawn)** The method as claimed in claim 6, in which the service query is a search service query.

9. **(Previously Presented)** A system for processing a directory service query, comprising:

a database using a plurality of tables, each table having a plurality of rows and columns, and storing arbitrary data; and

means for processing a service query by:

obtaining a sum of terms by expanding at least one nested term into one or more un-nested terms,

evaluating the sum of terms as a plurality of SQL instructions, wherein the sum of terms comprises one or more positive terms and one or more negative terms,

determining a plurality of results associated with the sum of terms, wherein the determination comprises:

collecting, into a first list, results associated with the one or more negative terms, and

collecting, into a second list, results associated with the one or more positive terms while omitting from the second list any results that are in the first list.

10. **(Previously Presented)** The directory service arrangement as claimed in claim 9, further comprising means to perform X.500 or LDAP services.

11. **(Withdrawn)** A directory service arrangement comprising:  
a database using a plurality of tables, each table having a plurality of rows and columns, and storing arbitrary data, and  
means for processing a service query by determining a SQL instruction representative of a function, listing the results of a subtracted SQL instruction in a first list, listing the results of a non-subtracted SQL instruction in a second list, and not listing results which are duplicates of previously listed subtracted or non-subtracted results.
12. **(Withdrawn)** The directory service arrangement as claimed in claim 11, further comprising means to perform X.500 or LDAP services.
13. **(Withdrawn)** A method for processing a database service query, comprising:  
translating a service query to an expression;  
simplifying the expression to a number of smaller expressions, each smaller expression being capable of being flattened;  
flattening each smaller expression; and  
executing each flattened expression.

14. **(Previously Presented)** A method of processing a directory service query, comprising:

receiving a directory service query,  
obtaining a sum of terms by expanding at least one nested term into one or more un-nested terms,

mapping the sum of terms to a plurality of SQL instructions, wherein the sum of terms comprises one or more positive terms and one or more negative terms,

determining a plurality of results associated with the sum of terms, wherein the determination comprises:

collecting, into a first list, results associated with the one or more negative terms, and

collecting, into a second list, results associated with the one or more positive terms while omitting from the second list any results that are in the first list.

15. **(Previously Presented)** The method as claimed in claim 14, further comprising expanding each term to remove NOT operators.

16. **(Original)** The method as claimed in claim 15, wherein the sum of terms are expanded using Boolean logic.

17. **(Previously Presented)** The method as claimed in claim 14, in which the service query is an X.500 or LDAP service query.

18. **(Previously Presented)** The method as claimed in claim 14, in which the service query is a search service query.

19. **(Withdrawn)** A method of processing a directory service query, comprising:  
determining a SQL instruction representative of the directory service query;  
listing the results of a subtracted SQL instruction in a first list, listing the results of a non-subtracted SQL instruction in a second list; and  
not listing results which are duplicates of previously listed subtracted or non-subtracted results.
20. **(Withdrawn)** The method as claimed in claim 19, in which the service query is an X.500 or LDAP query.
21. **(Withdrawn)** The method as claimed in claim 19, in which the service query is a search service query.

22. **(Previously Presented)** A system for processing a directory service query, comprising:

a database using a plurality of tables, each table having a plurality of rows and columns, and storing arbitrary data; and

means for processing a directory service query by:

obtaining a sum of terms by expanding at least one nested term into one or more un-nested terms,

mapping the sum of terms to a plurality of SQL instructions, wherein the sum of terms comprises one or more positive terms and one or more negative terms,

determining a plurality of results associated with the sum of terms, wherein the determination comprises:

collecting, into a first list, results associated with the one or more negative terms, and

collecting, into a second list, results associated with the one or more positive terms while omitting from the second list any results that are in the first list.

23. **(Previously Presented)** The directory service arrangement as claimed in claim 22, further comprising means to perform X.500 or LDAP services.

24. **(Withdrawn)** A directory service arrangement comprising:

a database using a plurality of tables, each table having a plurality of rows and columns, and storing arbitrary data, and

means for processing a directory service query by determining a SQL instruction representative of the directory service query, listing the results of a subtracted SQL instruction in a first list, listing the results of a non-subtracted SQL instruction in a second list, and not listing results which are duplicates of previously listed subtracted or non-subtracted results.

25. **(Withdrawn)** The directory service arrangement as claimed in claim 24, further comprising means to perform X.500 or LDAP services.

26. **(Withdrawn)** A method for processing a directory service query, comprising:  
translating a directory service query to an expression;  
simplifying the expression to a number of smaller expressions, each smaller expression being capable of being flattened;  
flattening each smaller expression; and  
executing each flattened expression.

27. **(Previously Presented)** The method of claim 1 wherein:  
evaluating the sum of terms comprises converting the sum of terms to a plurality of SQL instructions comprising at least one negative term;  
and further comprising:  
subtracting at least one result associated with the at least one negative term.

28. **(Previously Presented)** The method of claim 1, wherein obtaining a sum of terms comprises:  
identifying at least one term associated with at least one NOT operator; and  
expanding the at least one term associated with the at least one NOT operator into at least one negative term.

29. **(Previously Presented)** The method of claim 1, wherein:  
if the service query comprises a term having at least two NOT operators, deleting or disregarding from the sum of terms a third-order term corresponding to the term having at least two NOT operators.

30. **(Previously Presented)** The method of claim 1, wherein obtaining a sum of terms comprises:  
identifying at least one term associated with at least one NOT operator; and  
expanding the at least one term associated with at least one NOT operator into at least one negative term and at least one positive term.



31. **(Previously Presented)** A method of processing a database service query, comprising:

receiving a service query;

obtaining a sum of terms associated with the service query by:

expanding at least one nested term into one or more un-nested terms;

expanding at least one term associated with at least one NOT operator into at least one negative term and at least one positive term; and

if the service query comprises a term having at least two NOT operators, deleting from the sum of terms a third-order term corresponding to the term having at least two NOT operators;

evaluating the sum of terms as a plurality of SQL instructions;

obtaining a plurality of results wherein each term of the sum of terms is associated with one or more results;

generating a first list comprising one or more results associated with the at least one negative term;

generating a second list comprising one or more results associated with the at least one positive term; and

removing or omitting from the second list one or more results associated with the at least one negative term.